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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number H0003211	BSKB: 2929-0223P
Application Number 10/630,684-Conf. #7661	Filed July 31, 2003
First Named Inventor Magdy M.A. SALAMA et al.	
Art Unit 2838	Examiner G. L. Laxton

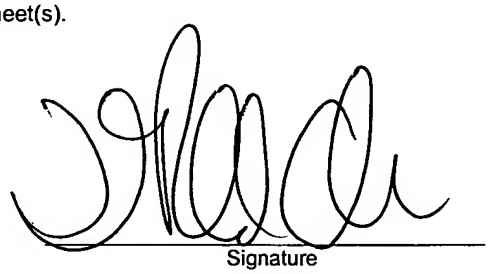
Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- [ ] applicant /inventor.
- [ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- [ ] attorney or agent of record. Registration number _____
- [x] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. 40,439



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February 6, 2006
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

- [ ] *Total of 1 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Magdy M. SALAMA et al.

Application No.: 10/630,684 Confirmation No.: 7661

Filed: July 31, 2003 Art Unit: 2838

For: HIGH-VOLTAGE POWER SUPPLY Examiner: G. L. Laxton

REQUEST FOR PRE-APPEAL REVIEW

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

February 6, 2006

Sir:

INTRODUCTORY COMMENTS

Applicants request review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed concurrently with a Notice of Appeal.

This pre-appeal review is being requested for reasons set forth in the attached pages.

INTRODUCTION

Claims 1-31 remain pending, claims 1, 18, and 31 being independent. As stated in the Final Office Action dated September 26, 2005: claims 1, 7-12, 18-22, and 24-30 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Shelly* (U.S. Patent 4,251,857) in view of *Gallios et al.* (U.S. Patent 4,893,227); claims 2-6 and 23 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Shelly* in view of *Gallios* and *Gak* (U.S. Patent 6,141,225); and Claims 13-17 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Shelly* in view of *Gallios*, and further in view of *Adasko et al.* (U.S. Patent 5,414,224).

For reasons detailed below, Applicants respectfully submit that these rejections fail to establish *prima facie* obviousness. Generally, the rejections misinterpret teachings of the applied references and fail to establish that one having ordinary skill in the art would have been motivated to modify or combine teachings of these references in a manner that satisfies all claim features. For purposes of this Request for Pre-Appeal Review, Applicants focus on the independent claims to highlight these deficiencies in the prior art rejections.

The Claimed Invention

Independent claim 1 is directed to a high-voltage power supply. The high-voltage power supply of claim 1 comprises: a power scaling section receiving an input voltage signal and converting the input voltage signal to a controllable DC voltage; a push-pull converter for converting the controllable DC voltage to a high-frequency wave; and a voltage multiplier receiving the high-frequency wave generated by the push-pull converter and performing successive voltage doubling operations to generate a high-voltage DC output, the generated high-voltage DC output being varied as the controllable DC voltage varies. Therefore, the high-voltage power supply of claim 1 generates a variable high-voltage output, based on the controllable DC voltage generated by the power scaling section, by using a push-pull converter to convert a controllable DC voltage to a high-frequency wave and a voltage multiplier to perform successive voltage doubling operations on the high-frequency wave output by the push-pull converter.

Independent claim 31 is also directed to a high-voltage power supply, and specifies that the push-pull converter generates a high-frequency wave having a frequency greater than approximately 20 kHz. Claim 31 further specifies that the output voltage levels for the voltage multiplier are in a range that includes voltages up to approximately 30kV.

The Rejections Under 35 U.S.C. §103

Page 4 of the Office Action acknowledges that the power supply of the *Shelly* lacks a voltage multiplier for performing successive voltage doubling operations to generate a high-voltage DC output as recited in claims 1 and 31, but relies on the secondary teachings of *Gallios* as allegedly making up for this deficiency of *Shelly*. More specifically, pages 4-5 of the Office Action states that:

> ...it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shelly to include a voltage multiplier for receiving high frequency wave generated by a push pull converter for performing successive voltage doubling operations to generate a high voltage dc output in order to provide high output voltage to a load requiring very high output voltage as taught by Gallios et al and to produce the high frequency wave at approximately 100kHz in order to afford high power density by the high frequency used, enabling the use of a much smaller, lighter, and lower cost magnetics and capacitors.

As further stated on Page 4 of the Office Action, the Examiner relies on column 5, line 31 of *Gallios* as allegedly disclosing the specific high-frequency wave output from the push-pull converter to the voltage multiplier of claim 31.

Deficiencies in the Rejection

To establish *prima facie* obviousness, all claim limitations must be taught or suggested by the prior art and the asserted modification or combination of prior art must be supported by some teaching, suggestion, or motivation in the applied reference or in knowledge generally available to one skilled in the art. *In re Fine*, 837, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The prior art must suggest the desirability of the modification in order to establish a *prima facie* case of obviousness. *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1995). It can also be said that the prior art must collectively suggest or point to the claimed invention to support a finding of

obviousness. *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986); *In re Ehrreich*, 590 F.2d 902, 908-09, 200 USPQ 504, 510 (CCPA 1979).

The primary reference, *Shelly*, discloses a power supply having: a DC-DC chopper-converter unit 10, which converts an input voltage V_{IN} to a lower voltage; and a DC-DC inverter-converter 12, which converts the voltage output by the DC-DC chopper-converter 10 to an output voltage V_{OUT}. The power supply of *Shelly* compensates for variations in the power supply's output voltage due to variations in output loading. More specifically, the power supply of *Shelly* illustrated in Fig. 1 includes a sensing network 14, which outputs a current signal i_1 that varies in proportion to output voltage variations, thereby causing the output voltage of the DC-DC chopper-converter 10 to compensate for such output voltage variations. See e.g., Fig. 1; col. 3, lines 16-36.

The Office Action has failed to establish that one of ordinary skill in the art would have been motivated to incorporate a voltage multiplier as allegedly taught by *Gallios* in the power supply of *Shelly*. More specifically, Applicants note that the DC-DC inverter-converter 12 and DC-DC chopper-inverter 10 combination of *Shelly* is specifically designed to regulate voltage appearing at the loads being supplied therein. Modifying *Shelly* so as to incorporate a voltage multiplier with successive voltage operations would appear to require a significant redesign of the power conversion elements specifically disclosed therein. Still further, the power supply of *Shelly* compensates for load-induced output voltage fluctuations with a current sensing circuit arrangement 14 that generates a current that varies in proportion to such voltage fluctuations in the particular power supply arrangement disclosed therein. Modifying the power supply of *Shelly* as proposed by the Examiner would appear to render the particular disclosed current sensing arrangement 14 unsuitable for this purpose. See e.g., MPEP § 2143.02 (specifying that a proposed modification or combination relied on to assert obviousness cannot change the principle operation of the prior art being modified).

Furthermore, with reference to the Examiner's reliance on column 5, line 31 of *Gallios* as allegedly disclosing the specific high-frequency wave output from the push-pull converter to the voltage multiplier of claim 31, Applicants note that this cited portion refers to switching

frequency of transistors in a power stage 20 that includes a transformer T10, not the frequency of a wave output to a voltage multiplier stage that performs successive voltage doubling operations.

At least for the above reasons, Applicants respectfully submit that the asserted grounds of rejection fails to establish *prima facie* obviousness of claim 1 (or claims depending therefrom) or claim 31. Independent claim 18, and claims depending therefrom, define over the asserted combination based upon similar reasoning to that set forth above with regard to claim 1.

Conclusion

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

Dated: February 6, 2006

By

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